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CRIMSON CLOVER SEED.

The use of crimson clover (*Trifolium incarnatum*), figure 1, has increased rapidly within the last few years. The fact that 3,319,866 pounds of seed were imported during the year ended June 30, 1904, shows the popularity of this clover. In addition to the seed imported a considerable quantity is produced in the States of Delaware and Maryland.

The peculiar value of crimson clover is due to its being a winter annual, sown from the middle of July until late in the autumn. It is especially adapted for sowing in corn and similar crops at the time of the last cultivation, furnishing a cover crop during the winter and preventing washing on light lands. In common with the other clovers it is valuable as a soil improver. The hay is of good quality, if cut just as it comes into flower. If allowed to stand till nearly ripe before cutting, it is of little value, and especially dangerous to feed to horses. As the seed ripens, the barbed hairs in the seed head become stiff and hard, and numerous cases are known where horses fed on ripe crimson clover hay have died from the hairs forming large balls in their stomachs.[1]

Crimson clover is distinguished from the other cultivated clovers by its long head of brilliant scarlet blossoms and its erect habit of growth. It grows throughout the milder weather in winter and quickly makes a dense cover to the ground in spring. This can be pastured, cut for hay, or turned under for green manure, depending upon conditions.

FIG. 1.—Crimson clover (*Trifolium incarnatum*). (From Bulletin No. 2, Division of Agrostology.)

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[1] Circular No. 8, Division of Botany. "Crimson Clover Hair Balls."

THE SEED.

The seed of crimson clover is larger than that of red or mammoth clover and is almost perfectly oval in shape. (Fig. 2.) The fresh seed is of a bright, slightly reddish or greenish yellow color and has a high polish. As the seed becomes older, the color changes to a reddish brown, and eventually the polish is lost and the seed has a dull, dark, reddish-brown color. Dark seed should never be purchased, as it is too old to grow.


Fig. 2.—Crimson clover seed.

In general, the seed of crimson clover is less liable to contain weed seeds than is the seed of the other clovers. Being planted in late summer or fall, it tends to choke out what weeds may come up with the young plants, and it is harvested in the early summer before many weeds have matured their seeds. Seeds of a few kinds of weeds are, however, frequently found, the most common being yellow trefoil (fig. 3), sorrel, mustard, and a wild geranium or crane's-bill.

GERMINATION.

While crimson clover seed is comparatively pure, it often does not germinate well. The seed deteriorates rapidly with age, and consequently fresh seed only should be used. A large number of samples received from seedsmen throughout the Southeastern States have recently been examined. The quality seems to be much better than it was four or five years ago, but there is still a considerable amount of old, dark-colored, worthless seed offered on the market.

As long as seedsmen disclaim any form of guarantee with seeds they sell it is necessary for the purchaser to be able to estimate the quality of what is offered. The percentage of seed that will grow can easily be determined by means of the simple tester shown in figure 4.

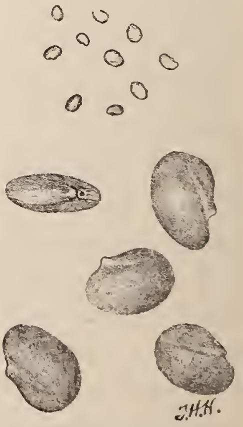
Fig. 3.—Yellow trefoil seed (*Medicago lupulina*). (From Farmers' Bulletin No. 194.)

Mix the seed thoroughly and count out 100 or 200 seeds just as they come, making no selection. Put them between a fold of cotton flannel or some similar cloth, taking care not to let the seeds touch one another. Lay the cloth on a plate, moisten it well but do not saturate it, cover with another plate and keep at a temperature of about 70° F. On the second and third days take out and count the sprouted seeds. Good seed should germinate 90 per cent or more in three days.

The importance of the germination test of crimson clover seed can not be too strongly urged. Many of the failures are due to the use of old seed, which is sold at a low price. This is dull brown in color, only a small part of it grows, and what does grow gives weak plants.

INOCULATION.

Crimson clover has no doubt been condemned in many localities on account of the absence of the nitrogen-gathering bacteria. These organisms, which grow on the roots of all plants belonging to the pea family, including the clovers, alfalfa, beans, and cowpeas, gather nitrogen from the air and make it available for plant food. While nitrogen-gathering bacteria have not been tested as extensively with crimson clover as with most other leguminous crops, the results in many cases have been very marked and would indicate that crimson clover seed should always be inoculated when it is to be sown on land for the first time, or on land which has not given satisfactory crops with former seedings.

LIMING.

In lower Delaware, where most of the crimson clover seed grown in the United States is produced, it seems necessary to lime the soil if a successful crop is to be expected. On the same soil which is not limed the clover does not thrive and seems to be much more likely to be winterkilled.

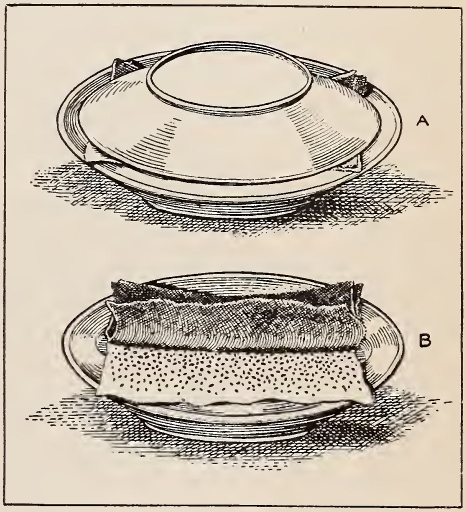

FIG. 4.—Homemade seed tester. A, closed; B, open. (From Farmers' Bulletin No. 194.)

AMOUNT OF SEED TO USE PER ACRE.

The amount of seed to be sown per acre varies under different conditions. From 12 to 25 pounds have been recommended, but in most cases 15 to 20 pounds is about the quantity required. The amount needed will, of course, depend upon the quality; a sample that will give 90 per cent of sprouts will go farther than one germinating 50 per cent.

TESTING BY THE DEPARTMENT OF AGRICULTURE.

As far as facilities will permit, the Seed Laboratory will make tests of crimson clover and other seeds, both for germination and for mechanical purity. The test for mechanical purity consists in determining the percentage of pure seed and of weed seeds. All samples sent for testing should be addressed to the Seed Laboratory, U. S. Department of Agri-

culture, Washington, D. C., and should be accompanied as far as possible by the following information: Name and address of seller, year and place of growth, price paid, and name and address of sender. No charge is made for seed testing.

EDGAR BROWN,
In Charge of Seed Laboratory.

Approved:
B. T. GALLOWAY,
Chief of Bureau.

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